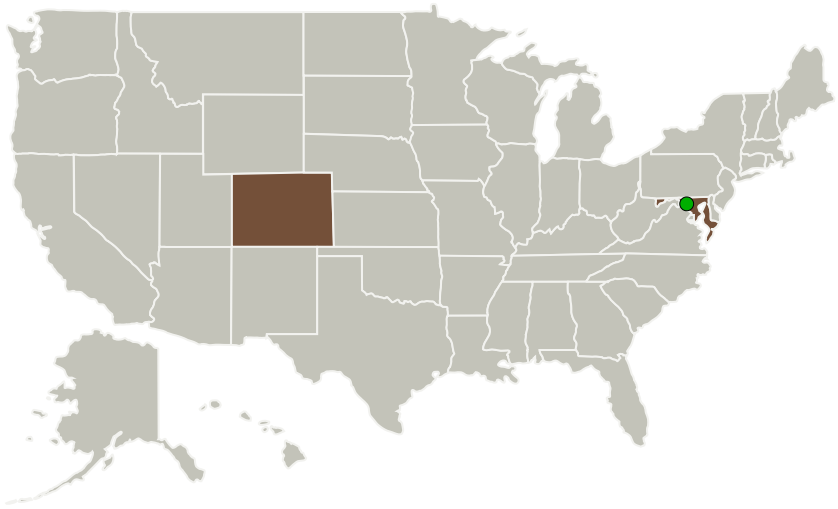
Accelerated Scientific InSAR Processing, Phase I

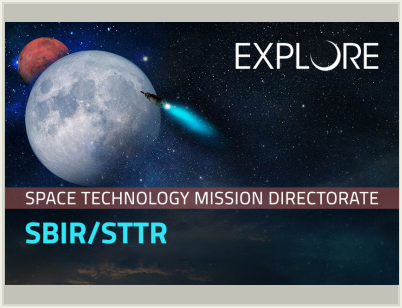
Completed Technology Project (2010 - 2010)

Project Introduction

Neva Ridge Technologies proposes to develop a suite of software tools for the analysis of SAR and InSAR data, focused on having a robust and adopted capability well in place for scientists by the era of the NASA DESDynI spaceborne synthetic aperture radar (SAR) mission. The software will take advantage of the latest technologies associated with graphics processor units (GPUs) to drastically accelerate desktop processing performance. The growth in both GPU hardware performance and software development tools far exceeds those for general CPUs and other computer systems. Our effort will take advantage of this externally driven growth throughout the next decade. Under the proposed paradigm, users will access raw data via the internet using the developed software tool and process this data locally on a desktop computer augmented with an inexpensive GPU system. The local software will be designed for both ease of use and flexibility allowing scientists to produce their particular InSAR products from archived raw data very quickly. The software process flow will be developed by Neva Ridge in conjunction with NASA InSAR scientists, and will be open to supported scientists who would like to add or modify internal algorithms. Neva Ridge will maintain the software in an ongoing support role, and will incorporate the new and updated InSAR algorithms as nominated by scientists. Under this Phase I effort, we will demonstrate the feasibility of this approach by prototyping the main flow of InSAR processing steps using a GPU-accelerated system and will design process flows for many InSAR applications.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
Neva Ridge Technologies, Inc.	Lead Organization	Industry	Boulder, Colorado
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations	
Colorado	Maryland

Project Transitions

January 2010: Project Start

July 2010: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138766)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Neva Ridge Technologies, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

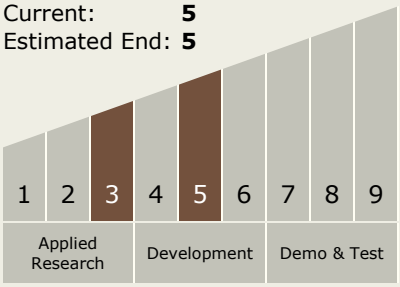
Carlos Torrez

Principal Investigator:

Richard Carande

Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**



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Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
  - TX11.4 Information Processing
    - TX11.4.2 Intelligent Data Understanding

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System